Testimony of
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Environmental Power Corporation
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Energy That Is Beyond Renewable™

Good Morning, Mr. Chairman. I am Joe Cresci, the Chairman of the Board of Environmental Power Corporation. EPC was founded in 1982. We are headquartered in Portsmouth, New Hampshire. Environmental Power has developed generating facilities powered by nonconventional fuels and renewable energy sources, including hydro-electric and waste coal-fired generation.

The focus of my comments this morning is our subsidiary, Microgy, Inc., headquartered in Golden, Colorado. Microgy develops biogas systems, which are very efficient at extracting methane-rich biogas from a combination of livestock manure and other organic and food industry wastes. Inside Environmental Power, we refer to our biogas as RNG – Renewable Natural Gas. Our RNG is used to produce "green" electric power, thermal energy, or refined to pipeline-grade methane. Microgy's biogas production system processes waste from livestock manure mixed with other organic wastes ranging from ethanol production by-products to multiple varieties of waste from the food industry. We have completed or announced anticipated installations for projects in Wisconsin, California, Texas, and Nebraska.

Microgy, along with our Danish licensor, has significantly improved conventional anaerobic digestion technology, enabling us to generate RNG at volumes and costs that is commercially attractive.

Although SEC regulations and competitive considerations do not permit me to discuss cost and pricing matters in detail, I can say that we believe our RNG will be competitively priced compared to projected prices for LNG imports. At the same time, our technology and manure handling processes also significantly reduce greenhouse emissions, improve water quality, and dramatically reduce odors around animal operations.

Microgy's system operates in the thermophilic temperature range, which provides faster, more complete digestion and accelerates composting, dramatically reducing BOD (biological oxygen demand) and virtually eliminating pathogens, while also providing more energy and a better by-product material. The residual product resulting from this process, of which I've brought a sample for you today, makes an animal bedding material, which is preferred by our customers because it doesn't carry the potential bacteria and pathogens of other products. As you'll note it looks a bit like peat moss, with only a slight earthy odor and a soft texture.

Our steel tanks, which resemble farm silos, and our piping are built to last, as are the high-tech monitoring and control systems. We build, own, and operate our energy

systems so farmers can farm, while we produce continuous energy output, 24 hours a day, 7 days a week.

Why is Microgy's system so efficient? We have the exclusive, perpetual U.S. license to a European technology that has operated for over 15 years in small applications and is now being adapted by Microgy for the traditionally larger U.S. farms with a broader diversity of manure quality. We believe that, until now, there has been no commercial precedent to our systems in scale and efficiency. We can produce pipeline-quality RNG and other "mainstream" energy outputs that are marketable in conventional energy markets.

At the same time, our operations provide significant greenhouse gas reduction. Our digesters capture the methane which is a 21 times more powerful greenhouse gas than CO2, which would otherwise be given off by the breakdown of manure, equaling an approximately 95% reduction in net greenhouse emissions to the atmosphere. We believe that our large multi-digester projects could generate 30-60,000 tons of CO2 equivalent emission offsets annually.

Our systems provide a number of other environmental benefits. They substantially diminish odor from waste at animal feeding operations. Manure run-off on farms is currently one of the leading water pollution challenges. Our process accelerates the natural, existing composting rate. Since we handle the waste anyway, we can more easily direct it to organic fertilizer/compost markets or divert it for appropriate alternative

disposal. Our high temperatures remove pathogens such as e'coli O157:H7 and our scrubbers remove toxic gases such as hydrogen sulfide.

Our initial projects, funded with EPC capital, have demonstrated the effectiveness of our technology, and the models are scaled to provide significant cost and productivity enhancements.

Our first U.S. installation, which established the commercial scale and viability of our process, is at the Five Star Dairy in Elk Mound, Wisconsin, and has been operational since June of 2005. That first anaerobic digester system is one 750,000 gallon tank processing waste from 900 milking cows. That is on the high side of a typical size dairy farm in the north-central part of the United States. That system produces approximately 775 KW of renewable energy, the equivalent of electricity for about 600 homes. The biogas produced by this installation is sold wholesale by Five Star to Dairyland Power Cooperative, which owns the generator.

The Five Star Dairy project produces about 4 to 5 times as much methane as conventional anaerobic digesters, such as the prevalent plug flow systems and the prevailing lagoon waste systems. Five Star sells biogas for Dairyland's use in renewable distributed electric generation, capturing an estimated 2,600 tons/year of greenhouse gases, and providing improved, no-cost bedding for dairy cows.

We are in the final permitting stages for a project at the Joseph Gallo Farms in Atwater, California. Two digester tanks for the manure from 3,000 milk cows are projected to generate 130 billion BTU's of energy per year, the equivalent of heating 2,200 homes. This closed-loop methane recovery from the farm itself is expected to replace 1.4 million gallons of purchased propane used in dairy and cheese-making processes. Construction of this project, too, is likely to be funded by EPC, because no credit is available, thus far. We estimate 8,000 tons of CO2 greenhouse emission offsets from the Gallo project.

Our next projects, in construction at Huckabay Ridge in Stephenville, Texas, and soon to enter construction at Mission Dairy in Hereford, Texas, represent a major technology upgrade and a major financial step out, moving our systems from small, local operations, to systems capable of providing the equivalent gas of a nice sized natural gas well. It is, however, a gas well which needs no depletion allowance, as long as we have cows and other wastes.

Huckabay Ridge at Stephenville has a plan for eight 916,000 gallon digester tanks for 10,000 milk cows. (The rule of thumb is one digester for roughly 1,000 cows.) In what we believe is a first for biogas, we will be constructing a scrubber plant (not a new technology, but a new use for integration in a biogas system) to provide pipeline quality gas that can be delivered to the nearby existing pipeline grid. A modest estimate is that we will be able to deliver 650,000 MCF of pipeline-grade gas annually, the equivalent needs for 11,000 homes or the equivalent of 12,700 gallons a day of heating oil. As

previously stated, that is equivalent to a good size natural gas well. I might add there are a total of 30,000 cows near the Huckabay Ridge project.

At the Mission Dairy project recently announced in Hereford, Texas, there are 24,000 cows permitted for the site. However, there are tens of thousands of animals within a ten-mile radius of that site, including dairy and feedlot cows. Each 10,000 cows is another potential "well" site, so to speak.

We conservatively estimate that we will be able to deliver at Mission Dairy our first application of a modular design/construction program, where we perfect not only economies of scale, but the beginnings of a replicable modular system. The component producers can then produce "models," rather than "one-offs," and we can then replicate standardized core designs. The models would be envisioned to be available in modules of four tanks.

With regard to the scale of the market as a whole, we estimate there are more than 150 Huckabay Ridge-sized projects, including more than 1,000 individual tanks, which would result in 81 trillion BTU's a year, or 81 million MCF of RNG. Our modular technology would also allow the participation of smaller dairy farms, where they could be economically grouped via tank, pipes, or other transport systems to central digester sites.

Pigs are a valuable part of our process as well! Indeed, most of the systems based on our technology currently operating in Europe operate on swine farms. The potential swine

market in the U.S. represents, at full utilization, potentially another 65 trillion BTU's a year of natural gas, or 65 million MCF of RNG.

EPC recently signed a letter of intent with Swift & Company, the world's second-largest processor of fresh beef and pork products, where we plan to use our technology to extract methane-rich biogas from the animal wastes, as well as meat processing wastes and certain wastewater plant residual streams that would otherwise be land filled or land applied. We will be cooperating with Swift to look at potential projects at seven other beef and pork production facilities throughout North America. We are excited about the opportunity to help Swift reduce costs and have a positive impact on the environment.

If you consider full utilization of wastes from the meat packing industry, which includes both their manure and numerous other by-products, you could potentially add another 5 trillion BTU's a year or 5 million MCF of RFG.

EPC's future has a place in the fuels world as well. There is potential for LNG production as a conventional fuel substitute. But perhaps one of the most important areas of potential expansion for EPC, and I know it is an important area for this committee, is that our EPC digesters are complementary with ethanol production, not in competition with it. Ethanol is a liquid fuel source, appropriate for gasoline blending and targeted at the automotive market. Biogas, on the other hand, is more appropriate for onsite use in heating, electricity generation and industrial processes, or as a source of RNG for delivery via conventional natural gas pipelines.

EPC digesters can supply ethanol producers with natural gas on-site, reducing reliance on imports of conventional natural gas, imports of LNG, and even the infrastructure needed for natural gas transport.

Natural gas, which you well know, is subject to wide fluctuations in price, and these fluctuations create uncertainty in industrial processes that rely on natural gas. This is no less true for the production of ethanol, as natural gas is a crucial element in the ethanol production process, and fluctuations in the price of natural gas are certainly hampering the implementation of ethanol production. Natural gas now costs $7 per mmBTU; it takes approximately 33,000 BTU's of natural gas to manufacture one gallon of ethanol, costing producers $0.23 for every gallon of ethanol they make. By providing readily available RNG for ethanol producers, EPC is offering a crucial ingredient that will facilitate the expansion of ethanol production.

Ethanol production uses corn as well as natural gas to create ethanol. The byproducts of this process, distillers grain and liquid stillage, can be used as source materials to be added to the manure for the digesters that supply the ethanol plant with RNG.

One of EPC's facilities in Wisconsin is currently co-digesting cow manure with liquid waste (stillage) from a nearby ethanol plant.

Further, if I may quote from RFA's own Ethanol Industry Outlook 2006, "Many estimate the supply of distiller's grains to reach 12-14 million metric tons by 2012 as the RFS (Renewable Fuels Standard) is fully implemented. Some believe this level of output will make it necessary to find new markets and uses for co-products." We believe that our systems can make productive use of these co-products to produce gas for the ethanol production process.

There is going to be a huge demand for a reliable, cost-effective, on-site source of renewable natural gas if the President's plan to increase ethanol production to 7.5 billion gallons by 2012 (from 4 billion gallons in 2006) is realized. To obtain an increase in production of 3.5 billion gallons of ethanol, these plants will need more natural gas. We estimate this need will essentially double the industry's demand for natural gas at the same time that domestic and world demand grows. Producing RNG on-site or proximate to ethanol plants will help abate their need for purchased natural gas and could help stabilize their pricing structure for at least the RNG portion of those energy needs.

EPC digesters use technology that has been proved successful in digesters throughout Europe and at EPC's first three projects in the United States. Unlike renewable energy methods that are exotic, but are yet to be fully tested, EPC has technology that is ready today. Our digesters already produce RNG from a diverse supply of farm and food wastes. Our technology is currently accommodating waste products from ethanol production. We believe that our evolving modular design for the digesters will enable rapid deployment at ethanol plants across the country. There are currently many ethanol

plants under construction, and EPC has identified a market for 800 new digesters at these plants, bringing the total potential market for digesters to 5,600 nationwide.

Our challenges? The lack of commercial credit and the limitations on our capital financing capability, mean that the development of this biogas technology will be significantly slowed if the public portion of the public/private partnership, such as Title XVII of the Energy Policy Act of 2005 (EPACT), is unavailable to "bridge the gap." Further, our production of RNG is not included in the numerous incentive programs available to all other alternative energy producers.

I quote from EPACT, “New or significantly improved technologies” including “renewable energy systems” and “efficient end-use energy technologies” that “Avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases.”

We are also looking at some of the existing Agriculture programs to expedite our work. . I must tell you, Mr. Chairman, this Committee structured the loan guarantee program in Title XVII very well. Unfortunately, when we last heard, the guidelines were still at OMB. Moreover, DOE has told us that RNG from manure and food wastes (biogas) is not currently a high priority.

Partial early guarantees, such as those this Committee did in Title XVII of EPACT, could help us “bridge the financing gap” for proving commercial viability! With some help with the “D” in “R&D” to more rapidly expand this efficient technology,” we could

move even more quickly through the first integration of our multi digester systems, which can be used for on-site, dependable systems for agricultural and ethanol operations, for sale of renewable gas into the existing pipeline system, and for future expansion to LNG applications.

We at EPC are advancing with the support of accommodative equity markets, by picking the low-hanging fruit. Our RNG initiatives could move forward more quickly with a private-public partnership and with participation at simple parity in incentive programs already available to all other renewable producers. RNG development would benefit from a level playing field and from implantation of Title XVII. It could enable us to extend the market place to smaller farms and more distant waste locations that may be more costly for us to serve at this time.

Environmental Power's path to commercial viability is the expanded large scale production capabilities of the technology. The construction and operation of initial projects to drive costs out of system will also provide those modularized templates for future projects. Commercial success of initial projects will demonstrate the wide range of applications; e.g. electricity, pipeline gas, inside the fence, ethanol production, LNG, and other thermal energy applications.

We are very excited about our role of providing our customers with dependable, predictable natural gas supplies, of helping establish more independence from imported natural gas supplies, of a growing potential synergy with ethanol production, and of

providing sensible, affordable, environmental solutions. Our trademark: we are making **Energy That Is Beyond Renewable™**, and moving forward to generating renewable natural gas.

I thank the Committee for their time and attention, and I would welcome you to visit our facilities around the country, particularly in Texas, where this fall we plan to start delivering RNG to the pipeline.

I would be pleased to take your questions.